

**IN THE CLAIMS:**

Please amend the claims as follows:

1-7. (Cancelled).

8. (Currently Amended) A method of allocating supply items from a supply chain network using a production planning system, said method comprising:

inputting a customer order comprising part numbers and a customer location;

deriving a demand item from said customer order, said demand item comprising a part number of said part numbers and said customer location;

exploding said demand item through said supply chain network, said exploding comprising identifying in said supply chain network a set of stocking points for said part number that have shipping routes connected to said customer location;

imploding said demand item through said set of stocking points, said imploding comprising:

identifying active stocking points, said active stocking points comprising ones of said stocking points in said set of stocking points that have the current ability to supply said part number; and

identifying inactive stocking points, said inactive stocking points comprising ones of said stocking points in said set of stocking points that do not have the current ability to supply said part number;

removing said inactive supply stocking points from said set of stocking points to form a set of active stocking points;

deriving additional demand items from said customer order, each of said additional demand items comprising a different part number of said part numbers and said customer location;

for each one of said additional demand items, repeating said exploding and said imploding so that said set of active stocking points is updated to comprise all active stocking points for all part numbers in said customer order; and

after said repeating, inputting said set of active stocking points into said production planning system, wherein said production planning system allocates ~~allocating~~ said active stocking points in said set of active stocking points to said customer order ~~using said production planning system~~ to produce a material allocation plan.

9. (Original) The method in claim 8, further comprising repeating said method for different customer orders.

10. (Original) The method in claim 8, wherein said exploding process considers substitutes for said part number.

11. (Original) The method in claim 8, wherein said imploding considers available inventory of said part number, capability to manufacture said part number, and scheduled future delivery of said part number.

12. (Original) The method in claim 8, wherein said exploding and imploding processes are carried out recursively.

13. (Currently Amended) The method in claim 8, wherein said exploding and imploding processes reduce the amount of data that is processed by said production planning system when producing said material allocation plan ~~in said allocating process~~.

14. (Cancelled).

15. (Currently Amended) A method of allocating supply items from a supply chain network using a production planning system, said method comprising:

inputting a plurality of customer orders, each of said customer orders comprising: a plurality of part numbers required for a finished product; and a customer location;

for each one of said customer orders, repeating the following processes:

deriving a demand item from [[said]] a customer order, said demand item comprising a part number of said part numbers and said customer location;

exploding said demand item through said supply chain network, said exploding comprising identifying in said supply chain network a set of stocking points for said part number that have shipping routes connected to said customer location;

imploding said demand item through said set of stocking points, said imploding comprising:

identifying active stocking points, said active stocking points comprising ones of said stocking points in said set of stocking points that have the current ability to supply said part number; and

identifying inactive stocking points, said inactive stocking points comprising ones of said stocking points in said set of stocking points that do not have the current ability to supply said part number;

removing said inactive supply stocking points from said set of stocking points to form a set of active stocking points;

deriving additional demand items from said customer order, each of said additional demand items comprising a different part number of said part numbers and said customer location; and

for each one of said additional demand items, repeating said exploding and said imploding ~~for said additional demand items derived from said customer~~ so that said set of active stocking points is updated to comprises all active stocking points for all part numbers in said customer order,

wherein said repeating of said processes for said each one of said customer orders is performed such that said set of active stocking points is further updated to comprise all active stocking points for all of said part numbers for all of said customer orders; and

after said repeating of said processing, inputting said set of active stocking points into said production planning system, wherein said production planning system allocates ~~allocating~~ said active stocking points in said set of active stocking points to said customer orders using said ~~production planning system~~ to produce a material allocation plan.

16. (Currently Amend) The method in claim 15, said identifying of said active stocking points comprising identifying, as live, any co-product having a binning relationship with said finished product, any sub-assemblies having a bill-of material relationship with said finished product and any sub-assemblies having a material substitution relationship with said finished product ~~further comprising repeating said method for different customer orders.~~

17. (Original) The method in claim 15, wherein said exploding process considers substitutes for said part number.

18. (Original) The method in claim 15, wherein said imploding considers available inventory of said part number, capability to manufacture said part number, and scheduled future delivery of said part number.

19. (Original) The method in claim 15, wherein said exploding and imploding processes are carried out recursively.

20. (Currently Amended) The method in claim 15, wherein said exploding and imploding processes reduce the amount of data that is processed by said production planning system when producing said material allocation plan ~~in said allocating process.~~

21. (Currently Amended) A program storage device readable by machine, tangibly

embodying a program of instructions executable by the machine to perform a method of allocating supply items from a supply chain network using a production planning system, said method comprising:

inputting a customer order comprising part numbers and a customer location;

deriving a demand item from said customer order, said demand item comprising a part number of said part numbers and said customer location;

exploding said demand item through said supply chain network, said exploding comprising identifying in said supply chain network a set of stocking points for said part number that have shipping routes connected to said customer location;

imploding said demand item through said set of stocking points, said imploding comprising:

identifying active stocking points, said active stocking points comprising ones of said stocking points in said set of stocking points that have the current ability to supply said part number; and

identifying inactive stocking points, said inactive stocking points comprising ones of said stocking points in said set of stocking points that do not have the current ability to supply said part number;

removing said inactive supply stocking points from said set of stocking points to form a set of active stocking points;

deriving additional demand items from said customer order, each of said additional demand items comprising a different part number of said part numbers and said customer location;

for each one of said additional demand items, repeating said exploding and said imploding so that said set of active stocking points is updated to comprise all active stocking points for all part numbers in said customer order; and

after said repeating, inputting said set of active stocking points into said production planning system, wherein said production planning system allocates ~~allocating~~ said active stocking points in said set of active stocking points to said customer order ~~using said production planning system~~ to produce a material allocation plan.

22. (New) The method in claim 8, said part numbers in said customer order being part numbers required for a finished product and said identifying of said active stocking points comprising identifying, as live, any co-product having a binning relationship with said finished product, any sub-assemblies having a bill-of material relationship with said finished product and any sub-assemblies having a material substitution relationship with said specified finished product.

23. (New) The method in claim 8, said part numbers in said customer order being part numbers required for a finished product and said exploding and said imploding being performed through a bill of material for said finished product in said supply chain network, said bill of material having at least three sub-assembly levels.

24. (New) The method in claim 15, said exploding and said imploding being performed through a bill of material for said finished product in said supply chain network, said bill of

material having at least three sub-assembly levels.